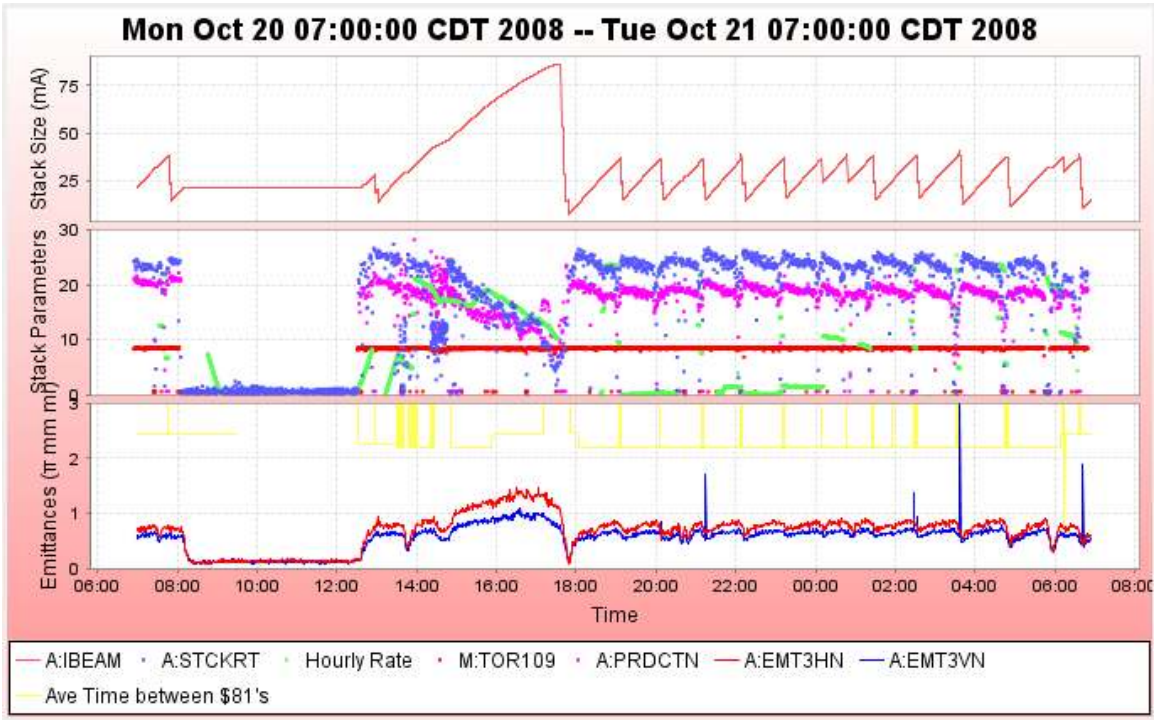
2008-10-21 Tuesday Morning Notes

Tuesday, October 21, 2008
6:50 AM

Stacking

- Performance
  - Most in an hour: 23.15 mA at Mon Oct 20 18:59:29 CDT 2008
  - Stacked 390.49 E10 in 24 hours.
  - Average Production 14.58 e-6/proton
- D:ISEPV did trip o a ground fault trip at 1:54 this morning, and there was a vacuum burp in the Debuncher injection region at this time. The supply reset ok.
- Core emittances were down, but so was stack rate. We will investigate today.



Transfers

- Unstacked 395e10 in 32 transfers over 16 sets
  - Accumulator to MI efficiency 97%
  - Accumulator to RR efficiency 94.9%
- Efficiencies back up due to improved emittances.
- Three sets of transfers where we did not take out as much as normal
  - 9678: Single transfer of 13mA. Recycler sequencer cursor grab + Accumulator core coherent spike on VSA.
  - 9679: Two transfers totaling 13.6mA. Accumulator core coherent spike on VSA.
  - 9684: Single transfer of 7.7mA...Recycler ACL script error + Accumulator core coherent spike on VSA.
- When the Accumulator profile on the VSA has a coherent spike, the markers that determine the RF unstacking curves get messed up, resulting in less beam captured.

Column 1 Number _0_Pbar	Column 4 Number_3_Transfer Time		Column 21 Number _20_A:IB	Unstacked (mA)	Column 24 Number _23_R:BE	Stashed	Acc to RR Eff	Column 27 Number_26 _MI DCCT	Column 28 Number_27_ MI Before	Acc to MI Eff	Acc to MI2 Eff	Transfers	Sets
	Totals =>	7:00:00 AM		394.93		374.69	94.87%	383.03	383.36	96.99%	97.07%	32	16
9685	Tuesday, October 21, 2008	6:38:32 AM	36.41	26.75	339.67	25.45	95.15%	25.92	26.07	96.91%	97.49%	2	1
9684	Tuesday, October 21, 2008	6:13:24 AM	36.91	7.65	314.72	7.16	93.67%	7.27	7.24	95.08%	94.70%	1	1
9683	Tuesday, October 21, 2008	4:49:32 AM	36.94	26.58	308.99	25.70	96.67%	25.82	25.89	97.13%	97.37%	2	1
9682	Tuesday, October 21, 2008	3:38:30 AM	38.01	26.67	284.28	25.49	95.57%	26.00	26.11	97.48%	97.90%	2	1
9681	Tuesday, October 21, 2008	2:32:47 AM	37.71	23.32	259.55	22.27	95.52%	22.71	22.64	97.39%	97.09%	2	1
9680	Tuesday, October 21, 2008	1:26:54 AM	37.53	24.03	237.79	22.85	95.09%	23.42	23.44	97.46%	97.56%	2	1
9679	Tuesday, October 21, 2008	12:47:43 AM	37.31	13.59	215.27	12.77	93.93%	13.21	13.04	97.15%	95.90%	2	1
9678	Tuesday, October 21, 2008	12:09:43 AM	36.24	13.09	202.78	12.43	94.94%	12.73	12.77	97.25%	97.57%	1	1
9677	Monday, October 20, 2008	11:13:02 PM	36.65	22.13	190.76	21.00	94.89%	21.42	21.41	96.77%	96.75%	2	1
9676	Monday, October 20, 2008	10:10:27 PM	36.29	23.33	170.08	22.36	95.81%	22.84	22.84	97.88%	97.90%	2	1
9675	Monday, October 20, 2008	9:11:34 PM	35.89	22.26	147.99	21.27	95.57%	21.38	21.64	96.06%	97.22%	2	1
9674	Monday, October 20, 2008	8:06:47 PM	35.92	22.53	127.00	21.49	95.38%	21.95	22.14	97.42%	98.24%	2	1
9673	Monday, October 20, 2008	7:07:09 PM	36.47	22.81	105.77	21.74	95.30%	22.03	21.81	96.60%	95.62%	2	1
9672	Monday, October 20, 2008	5:37:10 PM	85.49	79.25	84.38	73.75	93.06%	76.80	76.56	96.91%	96.60%	4	1
9671	Monday, October 20, 2008	12:58:24 PM	28.30	16.21	353.78	15.32	94.49%	15.64	15.85	96.48%	97.78%	2	1
9670	Monday, October 20, 2008	7:47:14 AM	37.60	24.74	342.15	23.65	95.60%	23.90	23.91	96.63%	96.66%	2	1

Studies

- None

Requests and Plan

a. General tuning and work on Emittance issues….

b. **Static Stacktail Measurements**.

- Conditions:
  - This study should be started directly before a set of transfers to Recycler. We want a 30mA stack.
  - Prior to the start of this study, we would like five supercycles of stacking without SY120 or Studies events in the TLG. This will allow setup the stacktail in a known condition for the study.
- The Study:
  - A Numi-only TLG is loaded
  - The studier is Dave Vander Meulen
  - The estimated study time is 20 minutes.
- After the study is complete, we can transfer to the Recycler.
- Leave > 10mA of beam behind for the next study.

c. **Stacktail Transfer Function Measurements:**

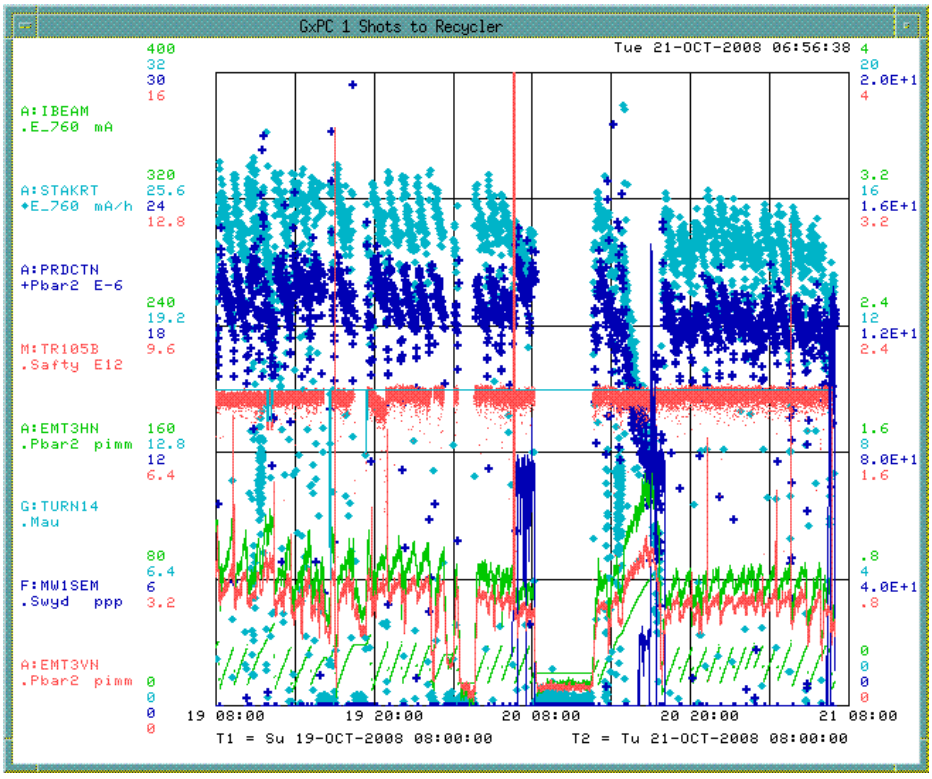
- Conditions:
  - This study will start with 10mA leftover after a set of transfers.
- The Study
  - The studiers are Steve Werkema and Ralph Pasquinelli.
  - The estimated study time is 4 hours.
  - If beam is lost during any of the measurements, we need to be able to stack for short periods of time to replace the beam for the next set of measurements.

The Numbers

The Numbers

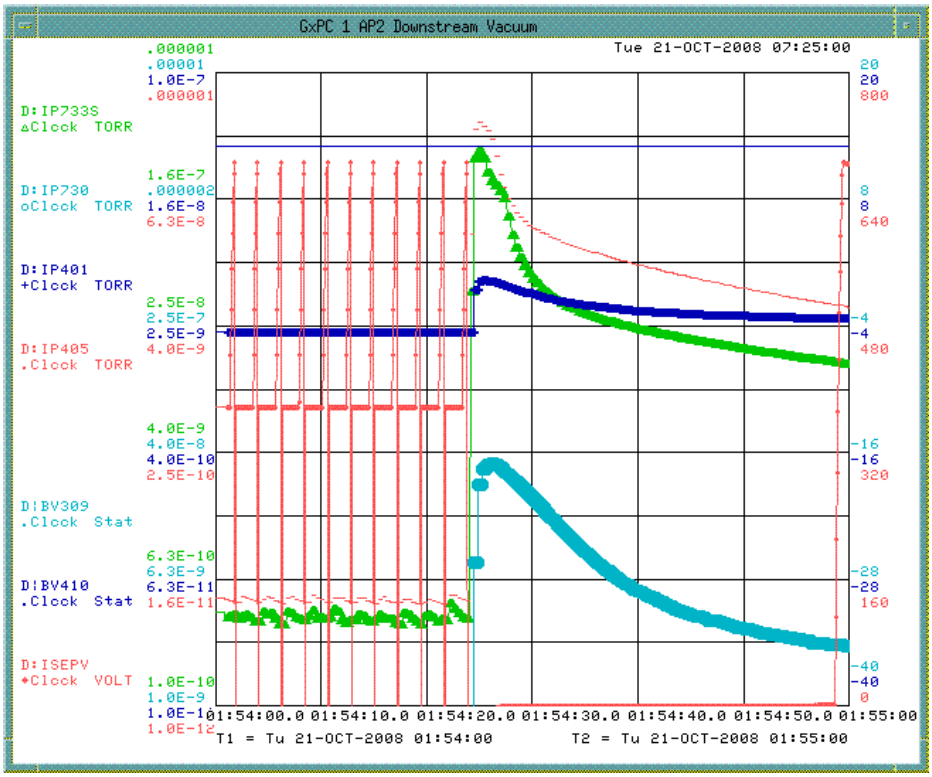
- Paul's Numbers
  - Most in an hour: 23.15 mA at Mon Oct 20 18:59:29 CDT 2008
  - Best: 27.01 mA on 03-Jun-08
  - Average Production 14.58 e-6/proton Best: 25.41 e-6/proton on 01/30/2008
  - Average Protons on Target 7.52 e12 Best: 8.77 e12 on 07/24/2007
  - Largest Stack 86.27 mA Best: 313.58 mA on 02/18/2008
- Al's Numbers
  - Stacking
    - Pbars stacked: 390.49 E10
    - Time stacking: 19.83 Hr
    - Average stacking rate: 19.69 E10/Hr
  - Uptime
    - Number of pulses while in stacking mode: 30275
    - Number of pulses with beam: 28588
    - Fraction of up pulses was: 94.43%
  - The uptime's effect on the stacking numbers
    - Corrected time stacking: 18.72 Hr
    - Possible average stacking rate: 20.86 E10/Hr
    - Could have stacked: 413.54 E10/Hr
  - Recycler Transfers
    - Pbars sent to the Recycler: 394.93 E10
    - Number of transfers : 32
    - Number of transfer sets: 16
    - Average Number of transfer per set: 2.00
    - Time taken to shoot including reverse proton tuneup: 00.20 Hr
    - Transfer efficiency: 97.97%
  - Other Info
    - Average POT : 7.84 E12
    - Average production: 17.42 pbars/E6 protons

Other



Pasted from <http://www-bd.fnal.gov/cgi-mach/machlog.pl?nb=pbar08&action=view&page=-7712&button=yes&invert=yes>

Emittances and stack rate over 48 hours



Pasted from <http://www-bd.fnal.gov/cgi-mach/machlog.pl?nb=pbar08&action=view&page=-7716&button=yes&invert=yes>

D:ISEPV ground fault trip